

EME



JOURNAL

2-2010

THE MAGAZINE OF THE ELECTRICAL AND MECHANICAL ENGINEERING BRANCH

Mission



New technologies

Solutions

Leo 2

M777

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EME AND
TECHNOLOGY

Learning & Action

Traditions & History

Awards & Recognitions



Défense nationale
National Defence

SUPPORT OUR COMPANIONS
IN AFGHANISTAN



HISTORY QUIZ

WHAT ARE THESE?

When we think of technology, the first thing that comes to mind is usually the cutting edge advancements that will take the Canadian Forces to the next level of fighting capability. What is in use today would once have been considered the highest of technological achievements, just as many artefacts used by soldiers in the past represented the capabilities of their era.

The items included in this article were in use during WWI and WWII, and would have been used or maintained by EME members during those wars.



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You will find the answers on page 15

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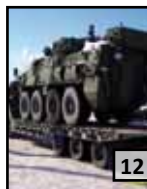
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BRANCH ADVISOR’S MESSAGE

By: Col S.P. Myers, EME Branch Advisor

I have been astounded over the past couple of years with the pace of technology evolution. Technology is an enabler that allows us to do this – to have a faster OODA loop than the enemy. So there is an ever increasing demand to get new equipment capabilities into theater, and upgrade existing equipments, so we can maintain our advantage. This has certainly tested our creativity and we have been forced to think not only outside the box but, in some instances, to redefine it.

Our equipment project teams have had to develop timely technical solutions to deal with the increasing threats that our soldiers face in theater by incorporating technology upgrades in terms of firepower, protection and lethality into our kit. Further, the timelines for delivering these capabilities into our Commander’s hands and our soldier’s hands has been significantly reduced. Whereas it used to take several years to field new equipment (Iltis replacement took 10 years), we are fielding in timelines measured by months or a few years (M777 took 7 months from idea to first operational firing). This is a testament to EME know-how being applied in the modern battles-space, in either new or upgraded equipments. This is EME engineering innovation at its finest.

Innovation does not however stop at the strategic level. With new technology comes an increased burden on our soldier-technicians – the folks who must close with and fix this kit under fire in adverse conditions. In addition, to meet the operational demand,

new technologies and equipment are fielded directly into theater prior to having a sound support or training plan in place, and our technicians must figure out the new kit on their own and keep it running, as our commanders need it. All in all, we are doing exceptionally well, and are respected for what we do, for our can do attitude and innovation at the pointy end.

Further, our ability to close with and fix kit anywhere, anytime is a testament to the quality of our instructors, and leadership at our School. They are working tirelessly to deliver the best training possible, and are using technologies to enable them in the form of targeted 3-D interactive simulation software as well as innovative means to deliver training with a view to increasing the capacity, quality and relevance of our training. Again, this is EME know-how at work.

Switching gears somewhat, I would like to take this opportunity to personally acknowledge and thank CWO St-Jean, on all your behalf’s, for all of the

work he has done as the EME Branch CWO, as our RSM. His work on esprit de corps, face to face honest chats with many of you, bringing your concerns to me and injecting them into our strategic deliberations at Council, his work on our technical training and OJT Centers, recruiting, building a retention culture, working on the EME Reserves...the list goes on...simply put, an impressive three years as the EME RSM, although I do have to point out that he did fail to teach me the finer points of golf... He has clearly left his mark on the EME Branch in more ways than one and I know that his efforts and successes will not soon be forgotten and I for one would like to thank my RSM for all his guidance, advice and sincere efforts in looking after the welfare of the EME soldier-technicians. RSM - you’ve been absolutely fantastic, and I wish you all the best in your new digs as the Senior Technical Authority of the SMP fleet in DSVPM 3.

CWO Bergeron has taken over from CWO St-Jean as the EME Branch CWO,

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The Journal of the EME Branch

Branch Formation:	May 15, 1944
Branch Motto:	Arte et Marte
Branch Patron Saint:	Saint Jean de Brébeuf
Branch Colonel	
Commandant:	BGen (retired) P.J. Holt, OMM, CD
Branch Advisor:	Col S.P. Myers, CD
Branch Chief Warrant Officer:	CWO JBA Bergeron, CD

our RSM, and I welcome him to the job. There are still many challenges the Branch is working through however, with his wealth of knowledge and experience, he will no doubt continue the excellent work. Welcome aboard CWO Bergeron.

Arte et Marte



BRANCH CHIEF WARRANT OFFICER'S MESSAGE

By: CWO JBA Bergeron, Branch Chief Warrant Officer

I was asked to write a text on technology within the Branch as my first task as the new EME Branch CWO. When I joined the Branch, we were in the midst of technological innovations, or at least I thought we were. As technicians, we trained on the old 2½-ton trucks from the fifties and jeeps from the sixties. The 5-ton trucks from the fifties were also part of the wheeled vehicle fleet.

When the eighties arrived, we soon went into full-technology mode. The good old roll of gun tape, the hammer, the roll of wire and the pair of pliers were soon to be confronted with new technological innovations. The Army was preparing to completely modernize its entire wheeled vehicle fleet. Of course at this time, procurement was a lengthy process. We received the equipment, the manuals on replacement parts and general maintenance, as well as training kits in a sequence allowing us in our role as Branch technicians to progressively absorb new technologies. We even had the luxury of being able to use troubleshooting equipment during our training experience. This is the way that technicians of that time kept up with the evolution of technology during vehicle fleet replacements.

Then came the 2000's, which would change, probably forever, the way we integrate new technology. The equipment requirements in theatre came and shook up our materials procurement procedures. Today, EME technicians are

in a tenuous position. Not only because of the proliferation of new technologies at the speed of light, but also because of the unprecedented rapid pace of procurement. The challenge for our technicians is keeping up with these new technologies. Everything's becoming electronic, digital and available online.

Do we have the manuals, the troubleshooting equipment or even the training kits on hand as soon as fleets appear on the ground? Unfortunately, not always. Does that change the needs of a user? No, because the user needs, and always will need, his or her equipment right away. So what do our technicians do to counter these shortfalls? Well, they innovate, discover new procedures and deal with the unknown. Inspired by EME tradition, they succeed in keeping up with the pace and satisfying user requirements. Yes, the School uses everything at its disposal to keep up with the pace, and everywhere my travels took me, there was always someone with an EME success story to

share. Be it day or night, with a manual or without troubleshooting equipment, an EME technician always finds a way to innovate. Would it be better to have everything on hand to do our job? Of course, but the work might become a little mundane and we certainly would not feel the satisfaction of having performed a little miracle. The things you accomplish every day as EME members are technological-innovation miracles that make me extremely proud to be your Chief Warrant Officer.

Arte et Marte



Call for Articles Edition 1-2011

Theme for the next issue : Training

We invite you to send your articles and photos relating to the above mentioned theme and categories (between 500 and 800 words). Please send your photos in a distinct JPEG file format rather than directly in the "MS Word" document used for the text. The photos must be at least 300 dpi (dot per inch), and 5"x7" of size or more to qualify for the cover page. The author of the article and people portrayed in the photos must be identified at the end of the article as follows: Rank, initials, last name, trade and unit. **Deadline for submitting your article is January 10th, 2011.** We reserve the right to select articles and to modify the texts according to the space available.

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REGIMENTAL INFO SUMMARY

Change of command

202 Workshop Depot

By : Sophie J. Tremblay, Communications Officer at 202 Workshop Depot

On July 8th 2010, in the scorching heat of a Montreal garrison hangar, 202 Workshop Depot (202 WD) held its



Here we can see, from left to right : Colonel Eldaoud, Brigadier-general Patch, Colonel Prévost.

change of command ceremony. 202 WD is one of two field units within DGLEPM and the only unit capable of 3rd and 4th level maintenance on land forces equipment within the Canadian Forces.

Among the distinguished guests present for the ceremony were the Director General – Land Capability Development, BGen J.R.A. Tremblay, the Director General Land Equipment Program Management, BGen A.C. Patch, the EME Branch Advisor, Col S.P. Myers and the EME Branch CWO, CWO D. St-Jean.

The Director General Land Equipment Program Management, BGen A.C. Patch, presided the ceremony and took command of 202 WD from Col Nicolas Eldaoud, commanding officer since march 2008, before turning it over to Col Jean-François Prévost who became the Unit's 24th commandant. Col Prévost's previous appointment had been Director of Land Requi-

rement (DLR).

Bravo Zulu to Col Eldaoud and welcome Col Prévost.

Canadian Forces School of Electrical and Mechanical Engineering (CFSEME)

By : WO Lotocki, Sup tech instructor, CFSEME

The weather was fine in order to receive the distinguished guests, the Branch Advisor and Branch CWO, followed by the Reviewing Officer, Col Simms (CTC Commander) and CWO Charlebois (CTC Formation CWO). The change of command ceremony was held to permit the passing of command of CFSEME between LCol Nishika Jardine and LCol Paul Fuller. The incoming commandant officially took the reigns of CFSEME for the first time and performed the march past of the reviewing dais.



Signing of the change of command's certificate : LCol Jardine; outgoing com, Lcol Fuller, incoming com and Col Simms, CIC'com, who presided the ceremony.

The members of CFSEME would like to thank LCol Jardine for her hard work and wish her the best in her future endeavours. CFSEME would also like to welcome our new Commandant, LCol Fuller, who brings a wealth of experience to CFSEME including previous appointments within the School. We

are sure his leadership and guidance will continue making us one of, if not the best, training establishments in the CF.

Arte et Marte

1st Service Battalion Maintenance Company

By: 2Lt Wong

1 Service Battalion (1 Svc Bn) is home to the largest number of EME officers and



NCMs in all of Canada, so it was befitting that a parade was held on June 18, 2010 for the change of command for the position of officer commanding in maintenance company. The parade was presided by the Battalion Commanding Officer, LCol Dundon.

The outgoing officer, Maj Jeffrey, a graduate of RMC, assumed command of Maintenance Company, 1 Svc Bn in November 2008. He is posted to LFDTS HQ, this APS, as the G4. The incoming officer commanding for Maintenance Company is Maj. Wright. Maj Wright is transferred to 1 Svc Bn from a posting with the Headquarters of the Canadian Forces Joint Support Group where he held positions in both the J3 and J5 branches.

We would like to welcome Maj Wright and Godspeed to Maj Jeffrey in his future functions.

LAV II BELLY ARMOUR KIT (BAK) PROJECT

By : Saeed Toolabi, Mounted soldier survivability, DAVPM 5

The Bison is an eight-wheeled armoured vehicle originally designed as an infantry carrier. They were purchased in 1996 at gross weight of 26000 lbs and met all mobility and protection requirements at the time of purchase. Currently, the Coyote is the CF's principal reconnaissance and surveillance vehicle. The Bison however, is engaged in the command and communications, electronic warfare, ambulance and maintenance roles which all add extra cargo weight to the vehicle.



We can see a Bison LAV during a mobility trial at the Aberdeen testing center

The current Canadian light armour vehicles are protected by Add-on-armour (AoA) and Improvised explosive device Kits (IEDPK). Since 2002 that Canadian Forces (CF) personnel have been deployed in Afghanistan and more specifically in recent years, CF personnel have encountered numerous enemy attacks particularly our light armoured vehicles (LAV) have faced Improvised Explosive Device (IED) attacks in the unprotected area of the belly. The recent attacks not only have increased in numbers but also in sophistication so much so, that these attacks now count for the

largest part of the CF casualty in the theatre, affect the soldier's safety and might complicate our mission in Afghanistan as a whole. Furthermore, these strikes and their trend have introduced an increasing urgency to deal with this great threat. Many of these incidents shone light on a new deficiency where IEDs exploding inboard of the wheels or under the unprotected belly of a vehi-

cle which has caused deformation and ruptured the vehicle's hull structure; this has resulted in serious injuries and death of crew members. In 2009 DAVPM was tasked with providing the Coyotes and Bisons with belly protection. The CF required vehicles with enhanced levels of all around protection. In the case of the LAV II, there was a specific requirement to provide blast

and fragment resistant coverage all around and in general to better protect the under belly of the vehicle.

During November 2008 to January 2009, part of on-

«The recent attacks not only have increased in numbers but also in sophistication so much so, that these attacks now count for the largest part of the CF casualty in the theatre, affect the soldier's safety and might complicate our mission in Afghanistan as a whole.»



A few of the steps of the process of the Bison mobility trials

going protection initiatives an analysis of the requirements, analysis of factors affecting the performance such as mobility, integration, vehicle configuration, floor characteristics and welding plus technical feasibility and cost analysis for LAVII Belly Armour Kits was completed by in-service life cycle manager Director of Armoured Vehicle Program Management 10 (DAVPM10). At the time, there were few options available but all lacked either compatibility with in-service IEDPK or needed a level of protection and/or technical rigor to fully overcome the new challenge.

Mobility trials 2010- ATC

DAVPM5 was formed and has been working as the CF mounted soldiers' survivability team since 2006. Since the inception DAVPM5 have initiated many solutions to ever increasing challenges at home and abroad in the conflict environment. Given the urgency and operational needs, based on the feasibility study, DAVPM5 put the acquired knowledge over three years of survivability initiatives to quickly execute a project to deliver belly protection kits for the LAVs Light Armoured Vehicle II.

Bison Mobility trials-ATC

Project authority held mobility trials at Aberdeen testing center (ATC) to confirm the performance without any

interference from added weight. The vehicle was ballasted to GCW and it was tested at ATC in three phases.

In Phase I, the mobility performance of the Coyote was measured. In Phase II, the mobility performance of the Coyote Test Vehicle was measured ballasted to 39000 lbs. In Phase III, the mobility performance of the Bison Test Vehicle at gross combat weight (GCW) was measured with its AoA, with BAK installed.

The issues in question were:

1. How Bison would perform at 39000 lbs?
2. Would added weight affect the braking?
3. Would the vehicle ascend or descend hills with the added weight?
4. How would the transmission and engine perform?

These tests confirmed that the test vehicle could perform without interfering with the regular soldiers' activity and/or vehicle performance. The vehicle's braking however, failed on a 60% slope at 39000lbs and some limitations in hill climbing were observed. Some minor glitches with fuel pump were also observed. Further pre-mobility trials at Technical & Protective Operation Facility (T-POF) in Orleans would test the first prototype's integration and installation issues, before the mobility trials with

BAK at the ATC. This project from the start demonstrates the dedication, problem-solving capability and ingenuity of the CF personnel / technical staff, in identifying deficiencies, overcoming challenges and in safeguarding personnel; saving soldier's lives in theatre and providing an even safer route to achieving our goal in Afghanistan.

The final belly armour kit solution needed to meet the original statement of requirement (SOR) and provide the fullest protection against new daily threat. That being said the solution needed to ;

1- Protect soldiers and passengers lives

2- Protect the vehicle from the initial blast, reduce the damages and increase survivability chances.

After successful performance testing in Valcartier, we conducted two separate testing in February and March of 2009 in which the belly armour proved to be intact. The Pre-mobility group, part of the "Technical & Protective Operation Facility" (T-POF) in Orleans, Ontario, did some tests with the belly armour kit prototype. They tested the tactical mobility of the vehicle as well as the other criteria needed. Those tests confirmed the vehicle and the belly kit armour could perform in unisons, without interfering with normal soldier's routine, therefore meeting the qualification criteria and the performance test.

During the critical design review, minor changes were made to the belly armour to further refine the solution toward a generic solution that fits all vehicle variants. The final belly armour kit solution is being produced in St-Jean, Quebec and is being delivered to the operational theatre now and will be assembled and installed by the units in theatre in November 2010.

HEAT STRESS MITIGATION LEOPARD 1C2 TANK CREW

By : Randy Miller, Directorate Armament Sustainment Program Management 6-4

High temperature and high humidity are climatic conditions that we all experience during the summer months. In Canada we are accustomed to combating the discomforts of a hot environment by simply turning on the switch for a fan or air conditioning system. Not so for the Leopard 1C2 tank crews operating in the Kandahar region of Afghanistan where the external summer temperatures can reach as high as 55°C.

The Leopard 1C2 tanks arrived at Kandahar, Afghanistan during the fall of 2006. During the run up exercises to prepare the tanks for going outside the wire, the crews noted the high internal temperatures (some reaching above 50°C) within the cast steel turrets and recommended that an air conditioning system be installed on the tanks. Early in January 2007, the Leopard 1 Equipment Management Team (EMT), Directorate Armament Sustainment Program Management 6 (DASPM 6) was tasked to investigate and make recommendations regarding possible technologies available to mitigate the effects of the heat stress expected for the Leopard 1C2 crews. The prime area of investigation would be technologies that could be delivered and installed prior to June 2007 and would be viable in terms of being applied to all of the Leopard 1 variants in Afghanistan.

Initial discussions by the EMT centred on looking at a means of removing or negating the primary cause of the extreme crew compartment temperatures; the solar loading on the 7 ton cast iron turret. After a constant six to eight hours in the direct sun, the turret became a veritable oven capable of baking bread and crew members. Secondary to removing the source of the heat would be an effective manner to lower the effects of the heat on the crew members.

The EMT subsequently engaged Defence Research and Development Canada (DRDC) Toronto and Valcartier to help clarify the "worst case scenario" in terms of the magnitude of the expected heat stress and strain on the tank

systems and crew members during the summer in the Kandahar region of Afghanistan. DRDC also agreed to investigate the existence of various commercial off the shelf (COTS) heat mitigation strategies; to conduct proof of concept trials using the climatic facility at the National Research Council Centre for Surface Transportation Technology (NRC CSTT); to verify if available crew cooling technologies would provide

- electrical requirements must be no more than 45 amps at 24 volts peak.

Vehicle air conditioning was eliminated early in the investigation. Previous studies had indicated that an air conditioning system would only be capable of reducing the internal turret temperature by 5 to 10°C. The requirement to design an exterior power source, the

estimated design time of over one year and the minimal benefit to be achieved were negatives for such a system. DRDC Toronto conducted a technology review, accessing research conducted by various international defence research organizations. The review resulted in the recommendation that a vapour compression liquid circulating personal micro-climate cooling system be tested for operational benefits for the



Liquid cooled vest worn under uniform

operational benefits to the tank crews; and finally to assist in developing possible solutions for installation in Afghanistan. Concurrent to the investigation, Public Works and Government Services (PWGSC) issued an invitation to industry to provide crew cooling solutions with the following requirements:

- the proposed system must be available for assessment during the climatic trials at NRC CSTT during the first two weeks of February 2007;
- the proposed system must be available for installation in Kandahar in June 2007;

magnitude and duration of the heat stress challenge for the Leopard 1C2 crew. Concurrently, DRDC Valcartier developed an external solar reflective blanket capable of reducing the solar loading on the Leopard turret by 90%.

The PWGSC solicitation of industry resulted in one response from Med-Eng Systems, Inc (now Allen Vanguard) for a vapour compression liquid circulating product consisting of three components. The two primary components are a vapour-compression chiller unit (cooling system) and a distribution vest worn over a t-shirt next to the skin by

the individual. The third component is an interface unit consisting of a supply and return line that connects to the vest using a quick disconnect valve. The cooling agent used in the sealed system is water.

Trials were conducted on a Leopard 1C2 tank manned by a volunteer crew of three from CFB Petawawa at the NRC CSTT climatic chamber during the first two weeks of February 2007. The climatic chamber was set up to simulate the extreme temperatures and solar loading experienced in Kandahar. With medical staff present, five separate trial scenarios were conducted:

- no cooling from chiller units and no solar shield, chamber temperature at 44°C
- active cooling from chiller units and no solar shield, chamber temperature at 44°C
- no cooling from chiller units and with solar shield, chamber temperature at 44°C
- active cooling from chiller units and with solar shield, chamber temperature at 44°C
- active cooling from chiller units and with solar shield, chamber temperature at 35°C

During the trials the crew members performed their normal routine duties within the tank and were constantly monitored by medical staff. The results of the trials indicated that the internal temperature of the Leopard 1C2 crew compartment reached temperatures of between 55°C and 64°C. In the absence of any cooling, these high temperatures induced severe physiological and perceptual heat strain in the crew. Sustained conditions would likely have rendered the Leopard crew members as operationally impaired in one to two hours and as heat casualties shortly thereafter. The results also indicated

that wearing Med Eng supplied COTS liquid cooled chiller vests at least doubled the period of time at which crew members remained operationally effective at external temperatures of up to 44°C.

members. The Leopard vehicles were free to return to action.

It has now been over two years since these systems were installed on the Leopard 1 fleet in Afghanistan. The use of the liquid cooled vests has been

so successful that DASPM 6 fielded numerous queries regarding the possibility of installing like systems in other platforms. Since the initial installation on the Leopard 1 fleet, micro climate systems employing chiller units and liquid cooled vests have been installed on a



The chiller unit is on the left followed by a liquid cooled vest and the quick disconnect system

Based on the trial results it was decided to install solar reflective blankets and a liquid cooled vest system on all Leopard 1 vehicles in Kandahar. Allen Vanguard was contracted to design and develop an installation procedure for the chiller units and liquid cooled vest system for all Leopard 1 variants in Kandahar with delivery prior to the end of June 2007. Concurrently, DRDC Valcartier was tasked to design and prepare solar reflective blanket kits for all Leopard 1 variants in theatre with the same delivery requirement.

The final design required the installation of two chiller units on the Leopards: one mounted internally for the driver and one mounted externally for the three turret crew members. The installation of the chiller units with connecting lines and the solar reflective blankets was completed concurrently in theatre by a Technical Assistance Visit (TAV) Team. Prior to departure, the TAV Team conducted a trial installation in Ottawa to verify the procedures.

The TAV team and all installation kits arrived in Kandahar by mid Jun 2007. On site facilities were secured, schedules promulgated and the installation commenced in earnest. By late July 2007, all solar reflective blankets and chiller units had been installed and the liquid cooled vests were issued to the crew

number of other theatre fleets including the Leopard 2 and M113 Families of Vehicles. The only issues raised to date are the repair procedures for torn solar reflective blankets and the availability of sufficient spare cooling vests to support the use on other platforms. The combination of the solar reflective blankets and a micro climate system employing the liquid cooled vests has proven to be successful in mitigating the heat stress experienced by the Leopard 1 crew members under the severe climatic conditions in Kandahar.

RECOVERY SOLUTIONS ARE COMING

By: Civilian EC Brandon-Williams (Engineer in Training, DGLEPM)

It happens suddenly. A combat vehicle suddenly encounters either a technical fault or some unforgiving terrain and can no longer move. The vehicle and crew cannot complete their assigned mission and may instead become an opportunity target. How do we quickly get this broken, damaged or stuck vehicle safely back to a location where it can be repaired and returned to operations?

Many things can complicate a recovery operation. The vehicle casualty is often located in terrain that is difficult to reach with large and cumbersome recovery vehicles. It might not be possible to tow it for extended distances if the casualty has very heavy add-on armour, is severely damaged, or has been designed so close to its axle tolerances that a suspend-tow could cause significant additional damage. If the casualty is an up-armoured Light armoured vehicle III (LAV III) or one of the new vehicles being bought under the Close Combat Vehicle or Tactical Armoured Patrol Vehicle projects, the recovery crew will probably encounter all of these problems.

In older vehicle fleets, the Army typically acquired a special recovery variant using the baseline fighting vehicle body. This approach assumed that recovery vehicles would be able to cover the same terrain and to suspend-tow sister vehicles. Unfortunately, new vehicle designs often limit the towing capacity due to axle weight, tow hook location/capacity, and the susceptibility of the frame to twisting. In addition, the procurement of a specialized recovery variant was usually cost prohibitive due to the small fleet size and the many modifications required to the baseline vehicle design. As a result of these technical and financial limitations, the army does not have recovery vehicles that adequately service many of its vehicle fleets.

A recent DLEPS study on recovery capacity found that there was insufficient deployable recovery capability, specifically for the wheeled LAV. This problem will get worse when the LAV III upgrade project significantly increases the load capability of the fleet over the next few

years. There is also no existing recovery solution for our medium trucks.

To address these capability deficiencies, two projects are in the early stages of approval. The Enhanced Recovery Capability project aims to purchase an agile, heavy, off-road deployable recovery vehicle while the Logistic Vehicle Modernization project is directed toward a fleet of lighter recovery vehicles. These purpose built recovery platforms aim to expand the currently limited options for recovery that often defaulted to a suspend-tow system.

In a suspend-tow system, an arm typically reaches under the casualty to raise the front end, shifting weight to the rear axles of both casualty and recovery vehicles. In older systems, this weight transfer tended to lift the front end of the recovery vehicle. This created an unsafe and destabilized situation that could only be resolved by mak-



The weight of a vehicle will determine the type of recovery vehicle used during the recovery of a damaged light armoured vehicle (LAV)

ing the recovery vehicle longer and/or making the front of the towing vehicle heavier. Both approaches were bad for mobility.

Recently, there have been encouraging developments using fifth-wheel towing devices to solve this problem. The

weight of the casualty vehicle borne by the recovery vehicle is shifted directly to the fifth-wheel. Problem solved? Only for the recovery vehicle. This new method still shifts the weight borne by the casualty vehicle to its rear axles, with the majority of that weight going to the rear-most axle. On many vehicles this is not problem. However, for vehicles such as the LAVs where additional armour has taken the weight close to its axle tolerances, this towing method can cause significant additional damage, possibly changing the problem from a quick fix to a major overhaul.

For these reasons, the project teams are looking at a number of other recovery options, including recovery trailers for transporting casualties over long distances. Tilt deck recovery trucks can lift the casualty off of the road and are also being considered. This can lessen the possibility of secondary damage to the casualty. In the past, tilt deck vehicles have been limited in their capacity and loaded height restrictions. However recent improvements now indicate that a six-axle truck with a 30 ton capacity could be used to recover the upgraded LAV III, though it may have to be paired with a recovery trailer on roads and highways (to address the obvious concern with low underpasses).

A long term solution to the Army's emerging vehicle recovery problem is overdue. DSVPM is committed to acquiring the platforms that best meet the CF recovery needs for our fleets of today and tomorrow. The recovery projects are hoping to buy between 20 and 50 recovery platforms for deployment and up to 200 for use in Canada. Don't hesitate to contribute ideas as we move this project along to delivery a quality product to you.

THE AMMUNITION SPECIALITY WITHIN EME: A TIME OF TRANSITION

By: Major Charles Woudstra, EME Branch Ammunition Advisor

Ammunition is a vital component of any weapon system; in fact it could be argued that it is the most critical aspect and that everything else is just a means of delivering the ammunition to the right place. The EME Branch has always maintained a small cadre of ammunition specialists to fill key CF positions dealing with ammunition and explosives.

The requirement for ammunition specialists has been evolving and growing over the past decade. Ammunition is becoming more complex in its design, there is a growing demand for a wider range of ammunition, and the regulations and safety requirements are increasing. As a result, the need for ammunition specialists has increased, not just in Canada, but worldwide.

In response to the challenges of reduced foreign training opportunities and increased CF demand, a year long post-graduate program in Advanced Ammunition Engineering was established at RMC in 2009. The CF is also investigating the creation of an Ammunition Technical Officer (ATO) course using RMC resources to conduct the academic portion and the Explosive Training Cadre in Borden to conduct the practical training. EME Officers with an undergraduate degree in engineering would be expected to undertake the engineering PG program, however, they may have the option of also completing the ATO practical phase, if the position that the individual is going into warrants this training. This could lead to a designation as an Ammunition Engineer Practitioner with both the ATO and Ammunition Engineer qualifications.

The EME Branch has recognized the need for higher education in a variety of fields and ammunition has been identified as one of the critical areas. The EME Branch will continue to

support the training of ammunition specialists with the emphasis on Ammunition Engineering. The program is open to both Captains and Majors (Lts in exceptional circumstances),

with the ideal candidate being a junior Captain who has completed a field tour. Despite specializing in ammunition, individuals are not restricted to ammunition specific positions from that point forward. Rather, they would still be expected to follow a normal EME career progression, moving between the various career fields (Command, Staff, Training, and LEPM); however their time in Equipment Program Management would be ammunition-centric.

In recognition of the special role that ammunition specialist officers have within the EME Branch, combined with the increased significance and rapid introduction of new ammunition, the position of Ammunition Qualification Advisor for the EME Branch was created in 2007. The current Ammunition Qualification Advisor is Major Charles Woudstra.

If you are interested in undertaking ammunition training, or if you have any questions about the ammunition speciality, you can reach him at Charles.Woudstra@forces.gc.ca or at 819-994-8951.



Manipulation of ammunition during an exercise

INNOVATION AT 202 WORKSHOP DEPOT

By : Martin Bolduc, Team leader, 202 Workshop Depot

Are you aware of the Firmware Flashing Kit and the TLAV Troubleshooting KIT? You can believe me when I say that military personnel who have had to diagnose electronic equipment problems during operations are incredibly grateful to 202 Workshop Depot electronics specialist Michel St-Laurent for having devised these diagnostic systems!

After developing a suite of four Programming Console (PROCON) software programs, Mr. St-Laurent realized that the computers Canadian Forces technicians used to maintain communications systems installed in military vehicles were not up to the task. The extreme conditions and environment in which they were used led to a range of problems from breakdowns caused by sand accumulation to overheating issues. The many problems and high cost of manufacturing led to the government spending a fortune in parts and repairs every year. The Firmware Flashing Kit was an initiative that emerged as a result of these observations.

The Firmware Flashing Kit is actually a computer that is used to do maintenance on communication systems installed in military vehicles. The design and prototyping for this robust computer installed in a Pelican case were de-

veloped entirely at the 202 Workshop Depot. Once the validation testing was complete, Mr. St-Laurent demonstrated the computer to a number of Ottawa clients. It was an immediate hit. An initial order of 100 units was made by the Iris Test

Equipment and Tools client to replace all the maintenance computers used by communications technicians across Canada.

Following that order and the success of the Firmware Flashing Kit in Afghanistan, a light armoured vehicle client expressed interest and ordered 80 units as a replacement for computers used by mechanical technicians. Since the Firmware Flashing Kit was not originally designed for mechanical technicians, the design was adapted to create the TLAV Troubleshooting Kit, a maintenance computer for electro-optronic and mechanical technicians. This computer is used to diagnose and maintain military vehicle motors, in addition to running diagnostic tests on Remote Weapon systems (RWS) and the Leopard fire-control system.

The 202 Workshop Depot also crea-



ted software interfaces for the Firmware Flashing Kit and the TLAV Maintenance Kit. These interfaces, developed entirely by Mr. St-Laurent, are regularly updated at the request of clients.

The benefits derived from these computers along with their low maintenance and manufacturing costs result in substantial savings for the Canadian government. You can just imagine the astronomical amounts the government would have to have spent to have these computers developed by a private company, not to mention the cost of feasibility studies and software development.

- Firmware Flashing Kit and TLAV Troubleshooting Kit offer many advantages:
- These more robust computers are better designed for use by end users in extreme environments. There are fewer physical breakdowns, and maintenance (third line repair)



In October 2009, Michel St-Laurent (centre) received the Chief of the Defence Staff (CDS) Coin from General Natynczyk (right) in the presence of Chief Government Whip and Minister of State Gordon O'Connor (left).

is done entirely by 202 Workshop Depot, thereby drastically reducing repair and maintenance costs.

- Software development and updates are also done by 202 Workshop Depot, which means design and software maintenance costs are practically non-existent.
- These computers connect directly to the vehicle's Tactical Command & Control Communication System (TCCCS)/IRIS system. The computer tracks the voltage of the communications equipment to ensure programming is consistent without any drop in voltage. This prevents programming errors that would result in the equipment having to be returned to the manufacturer for repairs. And the upshot is that the function drastically reduces the cost of maintenance (third line repair) by a private supplier.
- The computers are programmed for this task alone. They are tools and as such cannot be used for any other purpose.
- The computers are compact and thus easy to use in any vehicle.
- Yet another advantage is that these computers can program or control up to five units simultaneously, which enhances productivity, shortens delivery times and results in considerably reduced project costs.

HEAT SHIELD AND CAMOUFLAGE

By : Jean Dumas, Defence and Research Development Canada, Valcartier.

The theme of EME and technology presents a unique opportunity to expose what goes on in the sidelines of our work. Our technicians must cope with and repair any piece of kit in service but rarely get a chance to see what's coming down the line and what new technology is being developed with the sole purpose of enabling our combat troops to fulfil their mission more effectively.



Combined Heat Shield and Camouflage Material Development for Land Vehicle

Here is a glimpse of new technology being developed in the field of Combined Heat Shield and Camouflage Development at one of nine centres of Defence and Research Development Canada (DRDC); DRDC Valcartier.

For the past 5 years, DRDC-Valcartier, in collaboration with academic and industrial partners, has been actively involved in the development of a new generation of desert camouflage material specifically tailored for vehicle systems. Based on measurements made in various arid regions around the world, a generic performance envelope for the material was derived.

Because of the extreme temperatures and solar loading found in arid regions, basic military specifications also required that this new material includes heat shield properties to manage the internal temperature of

vehicles. Other requirements such as the reduction of thermal signature in both infrared wavebands and in the reduction of conspicuity in the visual and near-infrared spectral bands were also put forward. It was quickly discovered that thermal isolation materials such as foam were not efficient because they were not only delaying the absorption of the solar loading during daytime but also delaying the dissipation of solar energy during night time. To circumvent this basic problem, the concept of an artificial shadow based on a highly solar absorbing outer layer combined with an open mesh textile that enables air convection underneath. In effect, an artificial shadow is created that blocks most of the incoming solar energy and reduces transmission to the inside layer while enabling convective air cooling to evacuate the heat generated by the vehicle. Results clearly demonstrate the effectiveness of this

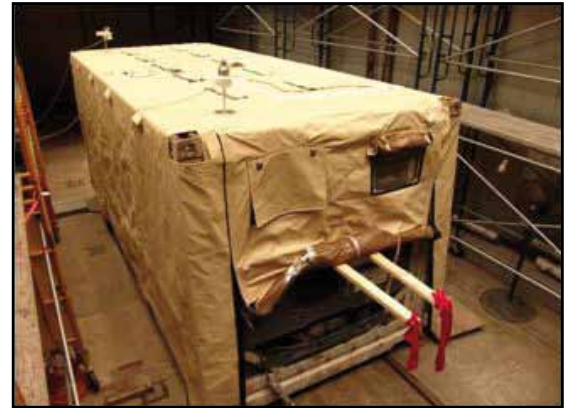


Images of the Canadian Leopard tank equipped with the prototype heat shield

approach with a 25 °Celsius temperature reduction. On-going work at DRDC Valcartier is now focused on the development of a new generation of adaptive camouflage material specifically tailored for vehicle systems. Those new materials should enable agile colour and infrared changes to render a vehicle more difficult to be acquired by modern sensors.

This new research has led to the fielding of new combined Heat Shield and Camouflage systems to the operational theatre for such weapons systems as the leopard tank within

a very short timeframe. As we see the battle field environments change and evolve around us, it is reassuring to see that every effort is being made to ensure the survivability of the equipment that we, as maintainers, are responsible for, and that ultimately ensures the survival of the combat troops we support every day.



Images of sea containers covered with the heat shield.

EME HISTORY QUIZ (ANSWERS)

By : Rebecca Mardell , ADM(Mat)/DGLPEM/DAEME/EIT



1 Artillery Tractor

The Canadian Military Pattern (CMP) Field Artillery Tractor (FAT) was one of many CMP trucks constructed during WWII using British military specifications, and was in service until 1945. The vehicle had a 6 cylinder engine, which produced 85 hp at 3400 rpms and had a 4 speed transmission.



2 Practice Grenade

This solid metal grenade was used to train troops in the WWI and WWII era, rather than wasting live munitions. The pin was removable and the safety handle is on hinges to mimic a grenade launch. A picture of a typical grenade from that time period is displayed at the bottom right for comparison.

3 Entrenching Tool

Entrenching tools were standard issue throughout WWI and WWII; the tool pictured was manufactured in 1916. The entrenching tool was used for trench or fox hole digging; the head contains a shovel at one end and a pick at the other.



OPERATION ATHENA IN AFGHANISTAN

By : Cpl Tommy Burke & Cpl Neil Wall, Materials Technicians, NSE Maintenance ROTO 8

During OP Athena Roto 8 to Afghanistan we had an opportunity to work on several big projects. The biggest of which was the improvised explosive device (IED) rake. The concept of the rake system was to expose, pick up or sever command wire used to remotely detonate IEDs. The rake was also designed to be useful in digging up and exposing pressure plate IEDs. It is our personal hope that these rakes will become a life saving device in the near future.



An IED rake installed in front of the demining rolls of a Leopard 2.

In December 2009, we were approached by PO2 Wade Smith with an idea for picking up command wire while mounted patrols were travelling. True to Mat Tech tradition we accepted the challenge. After several chalk drawings on the welding table and hours of brainstorming we set to work designing and building an initial prototype. Cpl Wall's time growing up on a farm facilitated a design based on the field harrow, a device used for scratching the surface of farm land to pull up weeds and flatten the profile of the soil.

Raw materials were limited in the Forward Operating Base (FOB) so we used what was on hand and whatever MCpl Jay Doiron could scavenge from the shop in KAF, or our new friends at the US 89th maintenance workshop. Machine gun buffer springs became a shock system to allow the points of the rake to follow the contour of the earth. The concept design behind the IED rake was a great success. After testing the initial miniature prototype, the need for several design improvements became apparent, thus making the need for a second prototype necessary. The

concept was passed up through the chain of command by Captain Kim of LDSH and the decision to make a working model became a reality. Planning began on phase two of the project.

In February 2010 we got busy on the next phase of our IED rake project. Thanks to some of the leadership within NSE maintenance, namely Major Dave Beyea and WO Dan Jessome we were afforded the time to construct this IED rake. It took approximately 3 weeks of 10-14 hour days to complete the full size working model. The IED rake needed a method of travel so we decided to design it to mount in front of the mine rollers on the Leopard 2 tanks. While building the rake, there were some obstacles, known and unforeseen. One such issue was the fact that it had to be easily removable from the rollers. Not easily done with a 400kg apparatus. This was accomplished by welding tabs onto the mine rollers to act as mounting hard points. Another issue was the fact that level ground was nowhere to be found, thus making measurements taken incorrect when in operational mode. The inconsistency in

the quality of the metal proved to be a definite hindrance. Gator ATV batteries and the electric jack used to lift the box of the gator became an automated stowage system for the rake while travelling on hard pack, allowing the operator to raise and lower the tines at will. Fitting these items and making them operational required a great deal of trial and error but the finished product proved very effective. After completion of the second prototype, a demonstration was given to the battle group commander as well as several high ranking officers who were present at MSG at the time.

All of the drawings were compiled and sent to be drafted into blueprints. Currently, the project is going through the necessary channels to have the prototypes sent to DRDC back in Canada for the engineers there to tweak the IED rake and hopefully a working production model will be forthcoming.

Arte Et Marte



DEPLOYMENT TO HAITI OP HESTIA 2010

By : Capt Carl De Ladurantaye, eng. Maint O Coy IST of JTFSE, Camp CNN Haiti

During OP HESTIA in Haiti, the maintenance platoon served with the Support Company of the Joint Task Force Support Element (JTFSE). We were mandated to do 1st line maintenance of all JTFSE equipment as well as 2nd line for equipment belonging to Joint Task Force Haiti (JTF(H)), which numbered no less than 2,000 Canadian soldiers and 350 vehicles at the mission's peak.

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The maintenance platoon at Camp Nouveau-Né (CNN), located on Port-au-Prince's airport site.

The maintenance platoon consisted of 34 vehicle technicians, two material technicians, six electro-optical technicians, three armourers and six senior non-commissioned officers. They did most of their work around the JTFSE camp, also called Camp Nouveau-Né (CNN), located at the Port-au-Prince airport. Maintenance was faced with a major challenge because we had to provide support for equipment spread out over several areas of operation. The headquarters were on the other side of the airport at a camp named Renaissance. This camp ended up generating a lot of support requests as HQ did not have full support in terms of maintenance.

Maintenance quickly became involved in setting up the camp. In the first few weeks of operation, two material technicians, MCpl Phaneuf and Cpl Vincent, spent a lot of their time building makeshift showers that could accommodate up to 200 people. They designed a shower made of wood hooked up to a 1,000-gallon reservoir and powered by a pumping system they found in a local store. The 200 members of CNN

were so impressed by the effective device that they decided not to install the field shower units.

The climate and harsh environment quickly made us realize that we needed to alter our lifestyles. The area where we were staying initially was infested with black widow spiders, tarantulas and sand fleas, which we were unfamiliar with. Of course, we rapidly adapted to them, despite a few skin irritations.

In addition to these bugs, we also had to deal with thieves. Several times, thieves stole items from us that were critical to our daily tasks. The security of the camp thus became paramount to our daily operations. MCpl Bouffard and Cpl Pelletier immediately took on the task of developing a detection system that would significantly increase the security of the camp. Innovative and creative, these engineers used whatever they had at hand to develop a d, se-

curity system to improve the security of Camp Nouveau-Né.

To give maintenance pl something to do in their free time, we staged a contest and asked the contestants to build both lethal and non-lethal traps for tarantulas. The incredible imagination of our technicians really shone through during this very amusing and stimulating activity.

JTFSE also started and completed another project: they re-constructed 2 concrete walls for an orphanage, rebuilt play modules for the children and, finally, built tables and benches for people at the orphanage. All of this has been recorded and posted on the following blog: <http://www.haiticoramdeo.blogspot.com/>. This project, directly mainly by Maintenance, was an achievement that enabled the



The platoon held a casino night which raised \$440 as a contribution to the orphanage

service company personnel to leave the camp and help the Haitian people. This initiative allowed us to see the po-

verty and suffering in Port-au-Prince, but it also made us realize something important. This very rewarding and meaningful experience allowed us to feel a sense of accomplishment by providing humanitarian assistance to the local population. To top off our contributions to the orphanage, the platoon held a casino night that allowed them to raise \$440. MCpl Bouchard and his team, the evening's organizers, really enjoyed being the dealers and welcoming us to their very own casino, making the evening extremely successful.

This 60-day operation was enormously rewarding for all IST personnel. During this rotation, we combined the deployment and the redeployment of JTF(H). It was an extraordinary experience that made us realize what we're really capable of.

smoothly. After laying the vehicle on its side, the Kiwis tried to right it onto its wheels. Unfortunately, the vehicle simply dragged on the ground due to the ice and snow. After a good laugh and a change of plan, the casualty was back on its wheels and ready to go.

The Kiwis made such an impression that some students decided to show them what Ontario is all about. They were treated to an outing to the Niagara Escarpment and a trip to Fort Erie to take in some Canadian history. The day ended with a stop in Toronto to experience the differences between the cities of Canada and those of New Zealand.

After a great weekend, everyone was back in the training area to finish the recovery assessments. Each student took the time to pull vehicles back up to the top of a hill, each scenario being different from the next. They were each able to learn from the successes and mistakes made by their peers.

As the course drew to an end, everybo-

NEW-ZELAND ARMY

By : MCpl Ensinger & Cpl Simard, CFSEME Veh Coy Recovery Section

With the start of the New Year came a new start for soldiers and students of CFSEME Vehicle Company. January 14th marked the beginning of the DP2 course 0160 at CFB Borden. Vehicle technicians came from bases across Canada including Edmonton, Petawawa and Galetown. The first portion of the training was conducted at Regimental Company where Mobile Repair Team (MRT) skills were sharpened and students were qualified as MRT commanders.

After a few days in the field practicing MRT calls, the course was moved over to Vehicle Company to undergo the technical side of the course. This included advanced diagnostics for major vehicle systems, a newly integrated hitching system and, the most anticipated training in advanced recovery.

As the class prepared for recovery, two qualified recovery technicians/soldiers from the New Zealand Army (Kiwis as they are known) joined our course. Cpl Nick Walkley and Cpl Lee Taylor took part in the recovery training for two weeks. The first and possibly most important part of the Kiwi visit was a stop at the local "Timmy Hawtons" as they called it. It didn't take long before they learned to love a great Canadian treasure: the double-double. The second part of the trip was working with Canadian EME soldiers conducting battlefield recovery. Everyone benefited from this experience as information and tactics were discussed to ensure proper recovery, vehicle safety, and efficiency.

A quick demo on how to do a controlled roll-over by our Kiwi counterparts ran



controlled rollover of a RG-31 NYALA during a recovery operation

dy was looking forward to returning back to their own units as qualified technicians while the Kiwis prepared for their long flight home. This recovery course had an international feeling of cooperation. The students were lucky to hone their skills and participate in an exchange between allies. The Kiwis learned about our country and our re-

covery techniques and they showed CFSEME how they recover down under. They are welcome back anytime.

NSE TAV TO FOB APACHE

By : Cpl Sean Marchand, Wpns Tech, NSE Maint Coy TF 1-10

From the day our tasking was first spoken of, it was shrouded in mystery. Little was known about this not-too-distant location - known to us only as FOB APACHE in Zabul Province.

As I looked around the briefing room table, anticipation was loud and clear in the face of each soldier. Gesturing intensely at the map traces and satellite imagery, Captain Murphy outlined the journey ahead: A five-member team was chosen to support a Romanian element by means of pure, direct work (X99). Surely that night, our heroes would be in homework mode, combing for data on this fabled "Piranha" – an unfamiliar platform that we all would somehow make serviceable. To each his own, we prepared the next day, sharing the information we found and building toolkits. It turned out to be that these vehicles were the Piranha IIIC, manufactured by Mowag, and similar to our LAV v2.5 a.k.a the Coyote. The contract for the maintenance on these vehicles had expired, leaving the Romanians with no maintenance staff, and thus we were asked to provide assistance based on commonality of equipment. Before long, the Romanian liaison appeared and we moved forward with EME confidence.

Despite the heat and weight of our fighting order, morale was high. As we boarded our chopper, cameras came out to capture the situation in HD. Our arrival yielded a short drive to soak in the new surroundings: Alexander the Great's castle from centuries past, stood on the hillside – now a jail. A tiny store, dotted with lush plant life jumped off the page of this barren landscape. Our accommodations were comfortably fitted into little bunk-bed rooms, not unlike the "suites" in KAF. The DFAC cuisine was welcomed with open arms (and a single tear) by our crew. Quietly we sat, sipping Rip-It and watching baseball until full. The following days gleaned a sense of routine – under the watchful eye of our Captain, Vehicle

and Ancil combed over each vehicle – learning, teaching and repairing as we went.



The team, ready for the mission.

Promptly, the Piranha fleet was presented and Tiger-team Vehicle spooled up. With surgical precision, MCpl Eddy reviewed records and technical manuals – making informed decisions in unknown territory would be vital to our success. Many a curious Romanians were attached to us, translating and offering hospitality at every chance. They were very appreciative of our efforts, and made sure we knew it. An oil-splattered Cpl Marsolais would periodically emerge from a random chassis to drink water, and exchange kit with our hosts. Wrenches turned, as if driven by machines themselves, until the onset of evening.

Concurrently, the scent of lead solder and CLP filled the air atop the vehicle decks. Ancil dissected the ORCWS (Overhead Remotely Controlled Weapon Station) platform – a strange new machine that refused to speak English. As before, a translator helped to decipher acronyms and together, we

began the long process. Through the harrowing spray of gun oil and broken parts, I observed Cpl Menard: Blazing solder-iron in hand, teaching a clinic on bore-sighting and repairing a trigger switch, all simultaneously. The gunnery crews were keen and experienced – once again, we would earn the reputation EME soldiers have come to enjoy.

By week's end, we had formed a proper dynamic with the Romanians. As if by regulation, shenanigans ensued, making the days pass with ease. It became clear to me that these soldiers were remarkable at adapting and improvising. They seemed mechanically inclined by nature, whether

or not they knew it. The section commanders were watchful and mindful of their troops' welfare – and ours. Notably, they all harboured deep patriotism. Everything in sight was emblazoned with the Romanian flag. Language barriers were quickly broken down by the task at hand – I worked mainly with a man twice my age, whom spoke no English at all. In Afghanistan, we are all foreigners: we all carried rifles, tourniquets, and pictures of our children.

Through training and experience, each of us brought something to the table. Our mission was a success. As the saying goes, we not only gave them fish, but taught them to fish for themselves. Returning to the helicopter pad for our long trip home. Again with the cameras, we watched Apache disappear into an obscure dust cloud, returning to NSE lines.

EX CHIRON APPRENTI

By : Cpl William Akerly, Vehicle Technician, NSE TF 3-10

We're training to learn how to deal with worst-case scenarios. However, we often don't have the chance to use the skills we've learned. But as part of EX CHIRON APPRENTI, conducted by the National Support Element (NSE) of Joint Task Force (JTF) 3-10, the participants knew that what they were learning would prove to be very useful in efficiently carrying out priority vehicle-recovery tasks once they arrived in theatre.

For the Maintenance Company, the objective of the training that took place at the Valcartier Garrison in May was to prepare its members for the various technical challenges that they will have to deal with once deployed in Afghanistan. In theatre, one of the primary functions of the Maintenance Company is recovering vehicles that have either broken down or been disabled by improvised explosive devices (IED).

The concept of the exercise was based on a gradual learning approach. Participants had to follow a three-step training program.

The first step consisted of familiarizing the students with all the vehicles used in theatre. This training activity allowed the participants to understand how to operate a vehicle and its equipment, as well as grasp basic mechanical details. "The fact that I get to operate the equipment of the new vehicles really adds to the training, I can learn without stress and have time to ask questions," said one member of the vehicle platoon. "As soon as we get to Afghanistan, there won't be time for learning anymore, just working."

The second part focussed on learning the capabilities of the vehicles used by the maintenance sub-unit in Afghanistan. Participants learned to use the various winches that equip our vehicles. In addition, they learned about the handling of heavy loads. The second part took place over a long weekend, which offered the benefit of giving us more time to let the lessons sink in. In fact, forgetting a detail and then being

able to go over it again shortly afterward is very good for improving long-term memory.

The final step of the exercise consisted of dealing with realistic complex recovery situations with damaged vehicle bodies. One of the scenarios involved a vehicle which had been knocked out by an IED, and which had been abandoned at the bottom of a sandy ditch. Our teams had to put the vehicle back on its wheels (or what was left of them!) to drag it to a secured terrain so that it could be hooked up to the wrecker and brought back to base. To make one of the scenarios even more realistic, the participants had to tow a tank that had lost its tracks. This task was only consi-

arrived on site, there were still injured people underneath the vehicle that had been hit by an IED. We had to act quickly and efficiently to not further injure the occupants. The MWO who received us was very clear, the lives of his team members were in our hands." said one of the instructors.

It is while actually having to recover vehicles that all eyes are on us. MCpl Marc Geoffrion told us the story of his call to come to the aid of an American convoy that had just been under severe attack. "There were American vehicles spread out over more than a kilometre, and several had been knocked out during the attack. The challenge for us was knowing how to manage the situation, how to assume control of the scene, and how to establish priorities." Before even starting the scenario, he would provide context by explaining the situation and challenges he had experienced. "When we succeeded in repairing and recovering their vehicles with the limited resources we had on hand, saying they were very grateful would be an understatement."



Towing of a Leopard 1 by a AHSVS.

dered complete when they had successfully placed it onto the seven-axle long-load trailer of the AHSVS, which was operated by NSE Transportation Company personnel.

What made this training exercise even more relevant were the instructors' personal experiences. Everyone teaching had recently returned from Afghanistan. In addition, the scenarios recreated during this third step were based entirely on real incidents that had occurred in theatre. "When we

Although EME technicians often do repairs alone, the two-week EX CHIRON APPRENTI gave them the opportunity to work in teams, to get to know each other better and to share their technical knowledge. The calls for help in Afghanistan are very serious. The training organized by NSE and the mentoring by Warrant Officer Drouin and his team allowed us to overcome our doubts and fears, and to replace them with an increased confidence in our personal abilities and in the equipment at our disposal to complete our tasks in Afghanistan.

BLUEBELL 2010 : BRINGING EME TOGETHER!

By: Capt JR Fleury, OIC CTC Maint PI – 3ASG Tech Svcs Gagetown

Since the branch is spread out throughout Canada and even the world over, it can be extremely difficult to keep up to date on the progress of our personnel and equipment. So once a year, the huge EME-GEM family gets together to brief one another on the past year. This year, the event took place at the Cartier Square Drill Hall in Ottawa in May.

This year's theme was survival and a number of presentations on the subject and some projects were shown to the members present. This event was also an excellent opportunity to award honours and recognitions.

Col Myers, the Branch Advisor, discussed the subject. The term survival comes from the fact that armed forces must increasingly adapt themselves to threats and enemy tactics to improve their chances of survival and the efficiency of their mission. To do this, we must find the best compromise between protection, mobility, comfort and maintenance. Currently we are exposed to improvised explosive device (IED) in our missions. So, we must think of a way to absorb or redirect the shockwaves of these bombs. Some progress has been made in response to this requirement. Of course, the vehicle's armour is an excellent addition, but the acceleration caused by the blast also causes a lot of damage to the interior of the vehicle. We must therefore ensure that our troops do not come in contact with the body of the vehicle (seats with foot supports, mounted away from the walls) to avoid exposure to deformation or fragmentation effects. In order to provide better protection, the equipment must also be secured in the appropriate compartments. The new LAV model, the LAV LORIT, features a new 5-point harness-type device, an external storage system as well as the new seating system that better protect our troops against IED shockwaves.

The Bluebell conference is an excellent platform to identify the challenges and priorities of our Branch. It's caught in an endless cycle: on the one hand, new equipment, expeditionary operations, ongoing training, technology insertions

and budget cuts, and on the other hand, manning shortage, attrition, reduction of moving costs, economic factors, and the balance between work and personal life. In order to minimize the impacts of this cycle, our Branch is investing in recruiting, ARTE training, communication and reservists. In terms of recruitment, we reached our objective in 09-10 for all EME trades. However, we are still lacking more Veh Techs at the Cpl level. MCpl/Sgt are also lacking in terms of trade skills. It should also be noted that the number of Senior Cpt is low. In looking at the projection for recruitment in relation to attrition, we can see



Winners of the Regional award program from the Branch Advisor surrounded by EME's superior Officers

that we're increasing in number in all trades. By 2011-2012 and 2012-2013, a more stable condition will have been reached. We must view this time as a challenge, and as a situation we must all face together. In order to promote the exchange of ideas, we now have two websites: www.emegembranch.net or to http://dglepm.ottawa-hull.mil.ca/dleps/embranch/en/index_e.asp for information relating to progress in our trade. ARTE training consists of a development centered on operations, an increase in training capacity and an

ongoing effort in the NFCE.

During the conference, Maj Matsalla outlined a Liaison Officer's (LO) work. This trade is directly related to resolving technical problems in the field. An LO's mandate is to investigate damage resulting from combat, to familiarize troops with survival skills and new equipment/modifications, to identify the shortfalls and to develop the equipment needed. The LO in essence performs a PR role while also participating in the analysis, development and upgrading of equipment. Generally speaking, this trade is directly linked with the front-line operators and troops, to determine the requirements and offer counsel and recommendations to the commanding officers of various units.

The Branch was also proud to present various honours and recognition awards during this conference. The Cadet awards were given to Cadet MWO Chantal Galati and Cadet WO Felix Boudreault. Recipients from every sector, as part of the Regional awards program from the Branch Advisor, are listed as follows: LFWA – Sgt Gaiger, LFCA – MWO Daley, LFQA – Sgt Mailloux, LFAA – Sgt Tunn, Air Command and Navy – Sgt Joiner, CFSEME, LFDTS et CFSTG – MCpl Marsolais, National Capital Region, 202, Land Forces Northern Area and Operational Command – Cpl Laprade. The Branch Advisor National Award was given to MCpl Marsolais. In addition, the EME medal for excellence was implemented and presented during the conference.

Finally, the conference proved successful in promoting "l'esprit de corps" as well as serving as an excellent platform for talking about developments, transformations and challenges for our Branch. It will be interesting to see the result next year!

FUNDRAISER FOR "OPÉRATION ENFANT-SOLEIL" HELD BY 12 RBC REG. MAINT.

By : MCpl Jonathan Dupuis, MCpl David Desjardins, MCpl Bruno Larose, Regimental Maintenance, 12 RBC.

I remember a time when I was younger and the Opération Enfant-Soleil (OES) telethon was always on TV in the morning. I would not really watch it, and most of the time I changed the channel. Obviously, I thought that it was for a really good cause and that these sick kids made me feel really sad, but at 10 years old, I had very different priorities.

Growing up, my priorities obviously changed, as did my interest towards the cause of this telethon. In April 2009, 12 RBC Maintenance Troop unanimously decided to give the money raised at the tire clinic to OES. After some research and in order to give this money to OES on live television,



On May 31st, 2009, MCpl Larose, MCpl Dupuis and Cpl Pepin gave a check of \$3350 to OES

we had to donate over \$2500, which meant that our original amount from the tire clinic would not be enough. In order to raise enough money for the cause, MCpl Desjardins and Dupuis held a tire clinic on a weekend in May, and MCpl Larose organized a breakfast and spaghetti supper, from which all profits went to OES. All members of the Regiment participated fully in the various activities, either as volunteers or simply as consumers, to accumulate a grand total of \$3350.

Given the success we had in 2009, we decided to do it again this year, this time led by MCpl Lessard! This year, we were even able to raise the bar up a few notches to get a total of \$4105.35. So that's over \$7455 accumulated over two years that has been donated to OES. Once again, well done and thank

you to everyone in the Maintenance platoon of 12 RBC who was involved in



On June 2nd, 2010, MCpl Lessard and MCpl Larose gave a check of \$4105.35 to OES

promoting this cause. Your dedication as well as your generosity will be greatly appreciated by the hundreds of children throughout the province.

LEAD BY EXAMPLE

By : CWO Mario Tremblay, EME Career Advisor, DCM 3-2-2

Back in June of 2010, CWO René Gilbert had a flash of genius and put together a team of runners that would take part in the annual Army Run held in Ottawa on Sept 19th 2010. The team was made-up of only CWO's from the EME branch and ran the half-marathon. Little did the team members know but a half marathon is no small feat, "We all accepted not knowing how much we were going to suffer". Just ask CWO St-Jean how much he suffered (by the way, he finished last amongst the team). The race was a success for all members and the team's final finish time was 1:44:53, which positioned them in 10th place out of 21 teams. All in all, the experience was well worth it and will be repeated next year. Who will take on this challenge next year?



CWO R. Gilbert, CWO M. Tremblay, CWO JBA. Bergeron, CWO D. Dubuc et CWO D. St-Jean (l to r)



- Cameron McNutt
- Jessica Turcotte
- Katherine Moreau
- Cameron Smith
- Thea Hawkins

EME Bursaries
2010

- Cassandra Lynn Snook
- Caitlin Norman
- Lauren Elvish
- Vanessa Gorham
- Marissa Northrop



Supporting our families through the EME Branch fund



EO TECH ARTICLE

By : CWO BME Fleming, Assistant Occupation Advisor, ADM (Mat) DGLEPM, Maj JGY Raymond, Acting Occupation Advisor ADM (Mat) DLEPS , Maj K. Buchanan, Occupation Advisor, ADM (Mat) DGLEPM

Hopefully by now everybody has had a chance to visit and use the EO Tech Shared Workspace. If you haven't, I encourage you to log on or if you don't have access to the site, contact CWO Fleming the Assistant Occupation Advisor. The occupation is in a unique position within the EME Branch right now and the site is a very important tool for the EO occupation.

Technology advances and the fielding of equipment incorporating these technologies have affected our occupation more so than others in the CF. Unfortunately the system to implement change in training systems can't keep pace with these rapid technology advances and implementations. This has been a challenge to our occupation on operations for a number of years and placed incredible pressures on all of you.

Over the last few months the Assistant Occupation Advisor (AOA) and Occupation Advisor (OA) have had an opportunity to hear first hand the issues that stand between you and the achievement of "in mission effects." One issue we hear continually is that there is a disconnect between what's taught in training systems and what's required for operations. The lack of emerging technologies being put into core training and the continued training on obsolete equipment is a legitimate concern. The situation exists because of the unprecedented pace at which new equipment has been fielded over the last 10 years. As a testament to the skills that you possess as technicians, you have worked through the problems, risen to the challenge and achieved considerable success on operations. This doesn't mean, however, that the system is working optimally and it is important that everybody in the occupation understands that our concerns have been heard and are being addressed.

Over the 2010-11 period, the Director Army Training EME (DAT EME) has scheduled many Qualification Standard

to achieve "in mission effects." One of the key issues remaining is ensuring that rapid technology implementation

is incorporated into our training as quickly as possible when necessary. The Shared Workspace is a key tool for us to understand the issues facing the occupation so we can develop and share the information necessary for you to do your job and capture this on our training in a timely manner. Your insight has gone a long way towards bringing about the changes that will benefit all of us. Please visit the Workspace, keep talking to us and let us know what's on your mind.

Date	QSWB / TPWB
18-22 Oct 10	QSWB M777 EO TECH
25 Oct - 5 Nov 10	TPWB M777 EO TECH
29 Nov - 10 Dec 10	QSWB DP1 EO TECH (REG F)
17-21 Jan 11	QSWB CASW EO TECH
24-28 Jan 11	TPWB CASW EO TECH
14-25 Feb 11	TPWB DP1 EO TECH (REG F)
21-25 Mar 11	QSWB LEO EO TECH
28 Mar - 1 Apr 11	TPWB LEO EO TECH
2-6 May 11	QSWB PSS EO TECH
9-13 May 11	TPWB PSS EO TECH
16-17 Jun 11	QSWB DP2 EO TECH (REG F)
20-30 Jun 11	TPWB DP2 EO TECH (REG F)

(QS) and Training Plan (TP) writing boards to breach the gap, see table 1. In order to help with all those QS WB and TP WB, MWO Wendy Mooney, an EO Tech, was posted to DAT EME as the "inside person" to help move the process along. We have complete confidence that these boards, comprised of technicians like you, will be successful at capturing 10 years of technology and equipment changes and incorporate them into current training.

We have this level of confidence due largely to the successes the trade has had on operations over this period. Lacking equipment specific training, and as one of the most technically challenging trades, you have managed

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 « Valoir un fonctionnement optimal de nos systèmes d'armement, voilà ma responsabilité. Comme technicien en électronique, je travaille au test, à l'entretien et à la réparation de l'équipement. Dans mon métier, la précision est une nécessité absolue. »
 Caporal-chef JOCELYN GERVAS

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GOING SLEDDING IN BC? THEN BRING YOUR SNOW-SHOVEL!

By: MCpl Beck C.R., Vehicle Technician, 2 PPCLI

The good news came to 2 PPCLI in early fall of 2009 that we were to receive a new fleet of snowmobiles to be used while deployed on Op PODIUM instead of the old and well used Bombardier Skandics. Even though the older machines have proved their worth as reliable and suited to the army's requirements, they were past their prime.

Speculations started as to which make and model of machine was to be the replacement. To our surprise, brand new 2009 Yamaha RST90YS Ventures showed up on our doorstep. At one glance you could see they were shiny, plush, and super fast. At closer inspection they were everything the Skandic was not. The Yamaha is powered by a naturally aspirated three cylinder 120HP four-stroke engine, equipped with two up seating on a standard track and a total dry weight of 284 kg (626 lbs).

I wonder what these machines will do, was the question on everyone's mind. Will they meet the demands of their use at Op PODIUM in Whistler BC, 2010? On behalf of the JTF-West G4 Maint 2, MWO Frazer MacDonald, the request was submitted to test trial the kit, and Director Land Requirements requested technical support in the form of CWO Brian Tuepah, DSVPM 3-7. However, seeing as there was still grass showing in Manitoba during November, a more suitable location was a must. Beautiful British Columbia it was. With three feet of powder on the hill tops of Vernon and a LOSV operator's course already in progress near Crystal Mountain Resort, it was the perfect setting. MWO MacDonald, as the coordinator of the testing, needed a volunteer. Therefore the question was posed: MCpl Beck, is there any chance you would like to be involved in this hardship exercise? Hell yes!

The task was to operate the new Yamahas at altitude (approx. 1800m), in mountainous terrain, through varying

depths of snow, while trying to haul a passenger and sleigh. This sounded like a lot of fun as I had never ridden in the mountains before, coming from the Kenora lake region of northern Ontario, where the snow is moderate and speed is a necessity to make any distance across the large lakes.

The first day started off with asking WO



The team, ready to go!

Trent Hiscock, LdSH (RC), IC of the LOSV Operator's course, who had been riding in the area for the previous three days, if there was anything I should bring besides the normal items like a tow rope and spare belt. His immediate reply was a shovel. A small shovel was acquired and hastily strapped to the back, thinking I probably wouldn't need it. I was very wrong. It only took the first chance at breaking a fresh trail in the powder to realize this. These conditions were far more challenging than I had expected or was used to. Trying to operate a trail sled in tight quarters, up and down exceptionally steep slopes in deep snow proved to be

challenging and rigorous.

Once someone found themselves stuck in waste deep powder, it was soon obvious that the routine was to dismount, remove the upper outer layer of clothing and start digging while hoping there was somebody nearby to help. After a few of these mishaps it was clear. This riding environment on such a performance trail machine requires time, experience, and a modification to the gearing. It eats more snow than it drives on.

For testing purposes three machines had been previously modified by Yamaha Canada with a lower gear ratio transmission to improve performance in mountainous conditions. A reduction in the transmission gear ratio proved to make quite a difference. Effectively slowing down the machine while keeping the requested torque at a more consistent and immediate level, thus allowing the operator added ability to prepare and adjust for difficult situations.

The results after three days of rigorous equipment testing under various conditions proved that these machines were better suited for groomed trail use. However with the aforementioned modifications currently being completed for the entire fleet, operators will find that their machines are much easier to control and will function much better during Op PODIUM. Suffice to say, I had an enormous amount of fun and thoroughly enjoyed this rare experience. Next time rest assured, I will bring a larger shovel.



WEAPON TECH

By : Major B.D. Davidson, Officer Commanding, Maintenance Company, 2 Service Battalion

Welcome to the second edition of the Hair Trigger! For this edition, we need to let you know that there's some more changes on the horizon.

This fall, it is planned to do a complete review of the Development Periods (DP's) 1-3 of the Occupations Specification. This will impact how training is done, what is done on core training and what becomes a specialty qualification. The Weapons Trade Working Group last December worked on putting together some ideas on where the trade should be working towards, or in this case, training towards. Another way of looking at it would be answering the question - what do we need to look like 15 years from now? This was a process at looking at the trends in training, technology, warfighting and army culture to try and develop a vision to feed the process in making useful change to the

Occupation Specification. This will soon be posted on a blog for you to read and comment on. Your point of view is important to help shape your future, and that of your troops, so please take some time to read, contemplate what was written and add your reflections into the blog.

The Accident Incident Investigation draft CFTO has recently been supported by the CF Provost Marshal policy staff, and the inclusion of the step of consultation with a DP3 (QL6A) qualified Weapons Technician will formally be adopted into their investigation checklists. Thank you for your patience!

There will be another Weapons Trade Working Group this fall. If you have an issue which you'd like to be discussed in this forum, please let us know through the OA or AOA at the contact email addresses below.

On a final note, this will be my last column as I am moving on to Petawawa as OC Maintenance Company, 2 Service Battalion. I have handed the conch over to Major Rob Haddow of DSSPM, who possesses lots of experience in supporting your small arms and has the willing ear and intelligence to progress your trade issues at the Branch Level. It has been a pleasure!



HAPPY 25TH ANNIVERSARY TO THE MATERIAL TECHNICIAN OCCUPATION AND TO ALL ITS TECHNICIANS SUPPORTING THE EME BRANCH AND THE CF.

By : Reg Murphy (CWO ret'd) as submitted for 50th EME Birthday

The Materials Technician trade is the fourth and latest member (in name only) to join the EME Branch. From ancient times, ancestors of the Materials Technician such as blacksmiths, saddlers, fitters, wheelers, tent menders, and others have been needed to support armies. The Materials Technician trade traces its heritage back to our earlier RCME and Royal Canadian Ordnance Corps wheelwrights, bodymen /painters, tinsmiths, blacksmiths, welders, machinists, leather and textile workers and Royal Canadian Engineers carpenters. During the early days of RCME, these trades existed to perform a specific function or skill, some of which were duplicated in other trades such as armored and vehicle mechanic.

With the integration of the Armed Forces in 1968, the Army materials support trades were disbanded, and their duties taken over by the Air Force workshop trades (Metals Technician, Machinist and Refinisher Technician). These Air Force trades, as well as the

LORE trades at that time, did not fully meet the material support needs of the Land environment. On January 1st, 1985, numerous materials support functions (machining, welding, auto body repair and paint, textiles, sheet metal and rough carpentry, to mention

a few) were amalgamated to form the Materials Technician trade as we know it today. The complete implementation of the Mat Tech trade, started in 1976, when DGLEM proposed the establishment of the trade, and ended with the last conversion course for all

AF personnel who transferred into the Mat Trade in Jan 1990.

Training

CFSEME and CFSAOE had generated Training Plans and Standards for both the Mat Tech TQ 3 and 5, and as well the various Mat Tech Conversation Training packages for the personnel from the four Air Forces Occupations. This was all done through available material from CFSEME and CFSAOE on hand and, even with the limited amount of time available, they developed and provided excellent technical training to ensure all New Mat Techs had the required skills to provide support in the Maintenance of all CF and Land Forces equipment at the time.

Support during operations and TAV's

Since our creation as an occupation within the EME Branch, Mat Techs have deployed on all operations everywhere in the world. To mention a few, we have been involved in tours in Cyprus, Golan Heights, Iran/Iraq War, the Gulf War, and Cambodia and most recently in operations in Afghanistan.

The experienced technician is the most important asset in the Mat Tech workshop. This often results in the workshop team being able to be creative and accept all challenges, while providing Field Expedient repairs to mission equipment and in some cases, equipment they may have never seen before. Many Materials technicians have also had the opportunity to participate in Technical Assistance Visits (TAV)



or special projects in the support of Operations. Often these TAV & special project required Mat tech personnel to mock up prototypes and design solutions for engineering approval, and to contributed their expertise as qualified welders during the installation of modifications and special kits ,often designed to better support

and protect soldiers and their equipment, in the theatre of operation.

Accomplishment by members in support of tours which brought credit to the Branch

The list below outlines the accomplishments of a few Mat Techs and is, by no means, meant to diminish the efforts by all other Mat techs that have deployed as a member of any TF Roto to Afghanistan or Camp Mirage. These few accomplishments demonstrate the dedication, resilience, and innovation that Mat Techs commonly provide on domestic and international operations.

MCpl Hoggarth – Meritorious Service Medal for innovation and outstanding work ethic while deployed to a Forward Operating Base (FOB) in Afghanistan;

Cpl Muzzy – Email from Section WO on the support Cpl Muzzy provided in the erection of elevated OP kits at one of the FOB's within Afghanistan; and of his fellow Mat tech peers working OTW, to weld security screens over all the culverts ends, along the convoy routes, to eliminate their use by the insurgents in planting IED devices and explosives; and

Cpl Blanchette and Cpl Payne - providing outstanding support to Camp Mirage, and in the recertification and accounting of all Sea Containers within the Camp.

Cpl Blanchette and Cpl Payne - providing outstanding support to Camp Mirage, and in the recertification and accounting of all Sea Containers within the Camp.

Future of the occupation

The future of the



Material Technician Occupation...well this is one area I felt to best leave alone, and let the Occupation and Assistant Occupation Advisor comment on, as they have more insight on the way ahead for the Material Technician for the short and long term out for the next 25 years. I will probably be safe in stating, that the future looks good or as the slogan we used 25 years ago, "The future so bright, we have to wear shades" probably still applies.

At present, several improvements to the Mat Tech training are being examined.

This includes the introduction of level 1 and 2 CWB Welding Inspector training criteria into DP1 and DP 2 trg. In addition, the creation of an Advance NDT course (including LPI, MPI and Ultrasonic) is under study. You will also see more involvement by Mat techs in major armoured or specialty equipment projects, as Technical Advisors or Technical Authority within DGLEPM, who will secure all technical data required to be incorporated in either core or specialty training crses, ensure standardization of equipment and procedures and to ensure that the

Mat tech have the skill and knowledge required to support any operation. The Mat tech occupation, as small as it is, provides all Maintenance organisations, both in Garrison and on operations abroad, with the technical expertise to make the difference and get the job done.

EME ENTERTAINS THE BRASS

By : Cfn. Chris Corbett, Weapons Technician, 3 ASG Tech Services Maint Coy

"This job looks a lot bigger than I thought... how can I do it myself? HELP!"

Ahh, the all too familiar call heeded by EME technicians both in Canada and around the world. But this was no ordinary call to recover a broken down MLVW, or repair a damaged howitzer – Jeep - which had been covered before the show by a huge this was a call to the Jiffy Jeep Team at the 2010 Army Ball, held on the 24th of April at Hilton Lac Leamy in Gatineau, QC.

For those not familiar with the Jiffy Jeep, it is a specially built vehicle that can be driven onto an arena floor, stripped down to the frame, re-assembled, and then driven off the same floor in under four minutes. All functions on the Jiffy Jeep are in working order, including the headlights, engine, transmission, and transfer case. The Jiffy Jeep was designed and built from an M38 pattern Jeep in 1993 by a group of skilled EME technicians based out of CFB Gagetown - Technical Services Branch.

This particular show was unique in its requirement that the Jeep could not be driven inside the conference center, and the space normally reserved for the show was much smaller than usual. But never the ones to be deterred from a difficult task, the 2010 Jiffy Jeep Team improvised, adapted, and overcame to stun and amaze senior CF staff in attendance, including CDS General Walt Natynczyk, CLS LGen Andrew Leslie, CFCWO CWO Greg Lacroix, and numerous brigade and formation commanders from across the country.

Accompanied by the Governor General's Foot Guards Brass Band playing a rousing tune, the team assembled the Jiffy EME flag - in under two minutes, and pushed it through the ballroom and out into the hallway – after stopping to pick up CWO Lacroix and Land Force Command RSM CWO Ford for a quick ride - where it remained on display for the rest of the evening. Several senior CF staff members stopped by to chat with the team members, including CDS General Natynczyk, pictured here. Team members were also presented with the LFAA Commander's Coin from LFAA Commander BGen Anthony Stack for representing the LFAA and 3 Area Support Group in stellar form.



2010 Jiffy Jeep Team Members from left: Cfn. T.J. Pisani, Weapons Technician, 3 ASG Tech Services Maint Coy, Cfn. Chris Corbett, Weapons Technician, 3 ASG Tech Services Maint Coy, MCpl. Guy Diotte, Vehicle Technician, 3 ASG Tech Services Maint Coy, CDS General Walt Natynczyk, Sgt. Bob Parsons, Vehicle Technician, 3 ASG Tech Services Maint Coy, Cpl. Samantha Cosgrove, Vehicle Technician, 3 ASG Tech Services Maint Coy, Cpl. Genevieve Lapointe, Vehicle Technician, 3 ASG Tech Services Maint Coy.

TRIBUTE TO CPL. NATHAN HORNBURG

By : Col (Ret) Murray Johnston

As a member of Task Force 3-07 at the age of 24 years, Corporal Nathan Hornburg was killed in Afghanistan on 24 September 2007 by enemy fire during the recovery of a Leopard battle tank. As an Armoured Recovery Vehicle (ARV) Driver/Operator, Hornburg, a member of the KOCR, was attached to the LdSH (RC) C Squadron EME Maintenance Troop. As such, he was responsible for the recovery of tank casualties and assisting in their repair.

Cpl. Hornburg's bravery, dedication and professionalism were honoured recently by Canada's Governor General, Michaëlle Jean, with the posthumous Mention In Dispatches Award for bravery under fire.

As a reservist, Cpl. Hornburg had no formal training as a mechanical technician in the repair of tanks, but his comrades held him in such high esteem that he soon became a highly regarded member of the LdSH (RC) EME Maintenance Troop, during both pre-deployment training and in the Afghanistan theatre.

As a result of Hornburg's dedication to the mission and his skill and professionalism, both the RCME Association of Western Canada and the EME Branch, have made Cpl. Hornburg a Honourary Member, the first time a reservist has ever been so honoured.

The ceremony was conducted during a special RCME/EME Reunion at Kelowna, B.C. on 18 October 2008. The Certificates of Honourary Membership were presented to both the LdSH (RC) Maintenance Troop and to the parents of Cpl. Hornburg.

In addition, Hornburg's parents were each presented with a military memory box with the RCME Logo engraved, containing the following tribute to their son.

In a letter to Cpl. Hornburg's parents, Colonel Shawn Myers, EME Branch Advisor wrote; "within our Branch, Nathan was an integral member of a very close-knit team and was highly respected and cherished by his fellow crew members and the maintainers with whom he worked. He was a brother to them and

will be missed. In acknowledgement of his complete dedication to the mission and the exemplary courage he demonstrated as part of an EME team in operations, it is an honour and privilege for me, on behalf of all members, to humbly accept Corporal Nathan Hornburg as a Honourary Member of our Branch. His spirit will forever be part of our EME Heritage, whose motto is Arte et Marte, (By Skill and By Fighting)."

The following comments in letters of commendation by several of Cpl. Hornburg's EME Crew Commanders

served with such a shining



example...."

Sgt. Scott Vandervaate.

"He, (Nathan) came to the LdSH (RC) Maintenance Troop just after Christmas leave 2007 with very little tank experience, but a passion for learning. Nathan never received any formal vehicle technician training, but by the time we were ready to deploy to the Afghanistan theatre, Nathan had the skill sets of a seasoned Leopard tank mechanic. His work ethic was beyond reproach, his natural mechanical abilities were excellent, but most importantly, his can-do attitude was an inspiration...."

Sgt. Doug Wardle.

"Cpl. Nathan Hornburg was an EME maintainer. He may have been a reservist and he may have worn an Armoured Corps hat badge, but there is no doubt in my mind that Nathan was a maintainer at heart. He believed in our ethos of Arte et Marte and proudly referred to himself as part of C Sqn Maintenance. Nathan lived as a maintainer and while operating the ARV during a recovery under fire, he died as a maintainer. Nathan has earned the right to be remembered as a maintainer...."

M/Cpl. Erik Poelzer, M.M.V.

*A knight is sworn to valour,
His heart knows only virtue,
His might upholds the weak,
His blade defends the helpless,
His word speaks only truth,
And his wrath undoes the wicked.*

.... from the movie Dragonheart

*These words describe Cpl. Nathan Hornburg.
We will not forget him and all the others
like him.*

during both pre-mission training and in theatre, reflect this young man's skill, enthusiasm and dedication:

"Fresh off his Leopard driver's course, Nate was ready to learn everything they don't teach you and for which most were afraid to ask. Very soon Nate had the ARV operation mastered with the precision of a surgeon. Nathan was one of those people who inspire those around him, not with words, but with what he did. I am very proud to have



Colonel Nicolas Eldaoud, CD, CO 202 Workshop Depot paying tribute to the parents of Cpl. N Hornburg, Ms L Loree and Mr. M. Hornburg. At left, Lt. Col. Al Price, who was instrumental in establishing Honourary Member Status in the EME Branch for Cpl. Hornburg.

Corporal Nathan Hornburg's personal philosophy was reflected in an essay he prepared some time before his death on the battlefield, when he wrote; "the world is becoming too small a place for political boundaries to protect dictators and tyrants from prosecution and to prevent liberated people from helping our suffering fellow hu-

mans." He went on to say that the blow to the world is; "the death of hope, not the death of people."

With these words and his life, Cpl. Nathan Hornburg passed every test as warrior, humanitarian and protector of democracy and freedom. He died helping the people of Afghanistan retain hope for a better future.



LAST CALL



CAMERON, FREDERICK R « RED »

Mr Frederick R "Red" Cameron has died on April 1st, 2010 in Winnipeg. He was 89.

CONWAY, V.G. « JERRY »

Mr V.G. "Jerry" Conway has died on January 5th, 2010.

DAVIS, WINSTON EDWARD

On December 25th, 2009, Mr Winston Edward Davis has passed away. He was 88 years old.

GRANT, GEORGE OLDING

Mr George Olding Grant past away at the age of 90, on December 4th, 2009 in Toronto.

HARE, RALPH

M. Ralph Hare has died on April 6th, 2010.

LAVER, E W « MIKE »

M. E.W. "Mike" Laver passed away on April 14th, 2010.

MCLLENAGHAN, NORMAN F

On April 17th, 2010, Mr Norman F. McLenaghan

MORGAN, CYRIL REEVES

Mr. "Cy" Morgan died in Halifax on February 9th, 2010 at the age of 83 years old..

PALMER, M PAIGE

Mr. M. Paige Palmer passed away on February 18th, 2010.

ROLFE, JAMES D « JIM »

Mr Jim Rolfe passed away on February 12th, 2010.

SMITH, NELSON C « SMITTY »

Mr Smitty Nelson passed away on May 18th, 2010.

STOW, EDWIN J « ED »

M. Edwin J « Ed » Stow est décédé le 29 mars 2010.

TIBBITS, MAURICE A

Mr. Maurice Tibbits passed away on May 9th, 2010 at the age of 86 years old.

THOMPSON, GEORGE (CWO RET.)

A former Radar Tech, Mr George Thompson has died on May 15th, 2010 at the age of 81.

YOUNG, DAVID

Mr. David Young passed away in Eau Claire, Wisconsin, USA, on November 24th, 2009. He was 69.

AWARDS AND RECOGNITIONS

MCpl Denis Marsolais

MCpl Marsolais received the regional and national Branch Awards during the



Bluebell 2010 conference in May 2010. The award was in recognition of his devotion to the Branch as a proud representative of the EME Heritage Room as well as a dynamic and appreciated instructor. The young soldiers he taught testified to his sense of innovation, realistic creativity and his modernistic view of training at the Canadian Forces School of Mechanical Engineering (CF-SEME).

Haji Hickmat Ullah Nicky

Due to his undeniable devotion towards the Kandahar Provincial Reconstruction Team (KPRT), Mr. Haji Hickmat



Ullah Nicky, a civilian supervisor for the mobile repair operations project, received numerous certificates of recognition. He also received the Task Force Commander's Coin for his noticeable performance. Mr. Hickmat Ullah Nicky demonstrates the same values which are dear and true to the EME Branch as

well as an esprit de corps as strong as the Branch's. On February 9th 2010, Maj D.D.G. Beyea awarded him the EME Branch Coin in a show of thanks for his exceptional work.

WO Jeff Morris

During his visit to NSE Maint Coy in Kandahar in August 2010, 2 Area Support Group Commandant, Col T.M. Endicott was given the opportunity to present an EME Coin of Excellence to WO Jeff Morris, Control Officer for the NSE and HQ PI Commander. The Coin was given in the name of the EME Branch Advisor, for WO Morris' professionalism and exceptional devotion. His actions have



contributed greatly to the success of maintenance operations with JTFA.

Maj P.S.C. Heebner

In support of Canada's humanitarian response to the devastating earthquake in Haiti, Major Heebner has received the CEFCEM Commendation. He was deployed as a liaison officer with the Force Support Element from January to March 2010. In an environment where resources and services were extremely limited, his rapid assessment and extensive liaisons with other partners helped shape the logistical support of the Task Force as well as contributing to the deliberate and orderly redeployment

of Canadian personnel and material to Canada. Major Heebner's dedicated efforts and expertise were pivotal to the unit's ability to overcome the logistical complexities of the mission, ensuring the operations success of the Task Force.



MWO Dan Paradis

On June 4th, during a visit from the Chief of Defence Staff (CDS), Gen W.J. Natynczyk, MWO Dan Paradis was awarded the CDS' Commendation for his involvement and exceptional work as the Technical Assistance Visit leader dealing with Combat Light Armoured Vehicles (LAV). His team, made-up of



members in 15 different CF trades, was given the task of installing add-on armour on more than 70 vehicles.

MURPHY'S LAW

By: MCpl Courchesne

THE MORE THING CHANGE, THE MORE THEY STAY THE SAME

